This Page Is Inserted by IFW Operations and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, please do not report the images to the Image Problem Mailbox.

Inventors: Wood et al. Serial No. 09/813858

PATENT APPLICATION

Navy Case No. 79,849

Appendix

See Substitute Formal Drawings

See Duplicate IDS



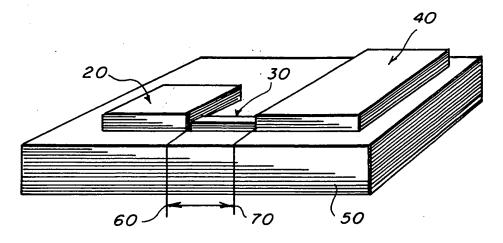
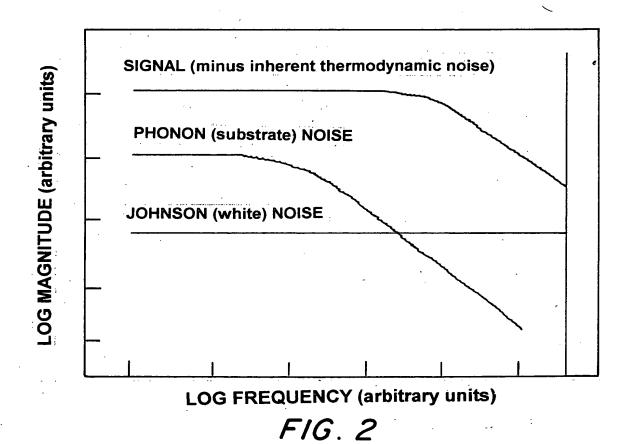


FIG. 1





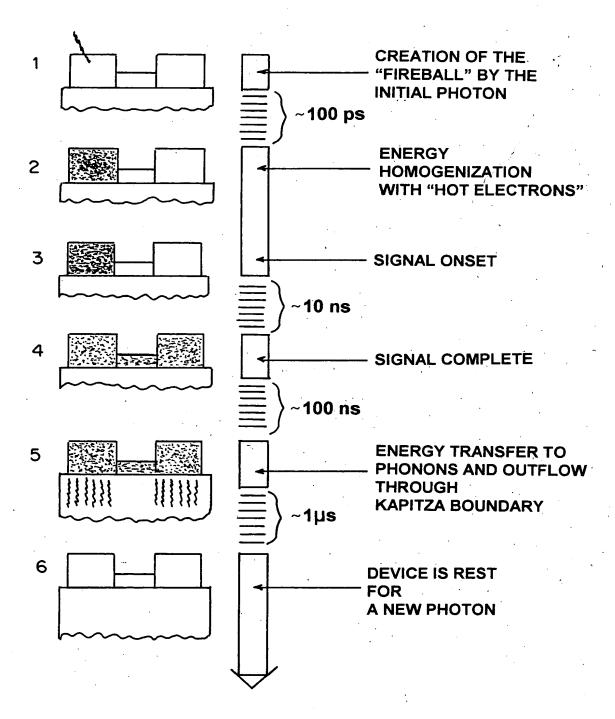


FIG. 3



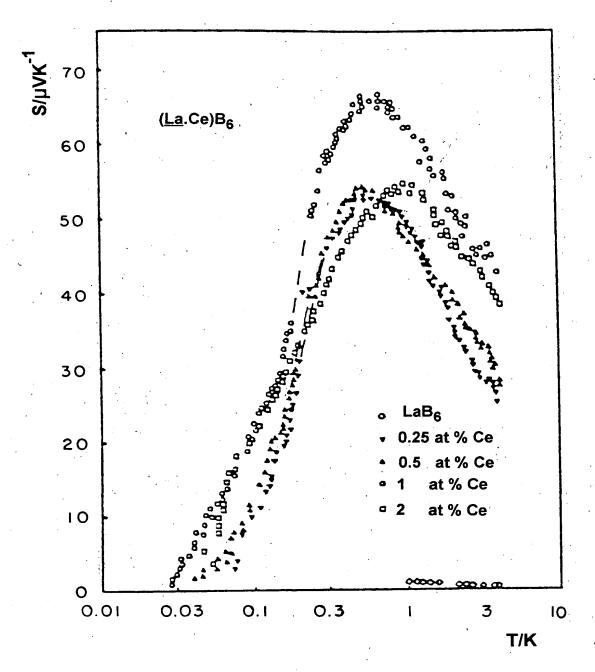


FIG. 4a



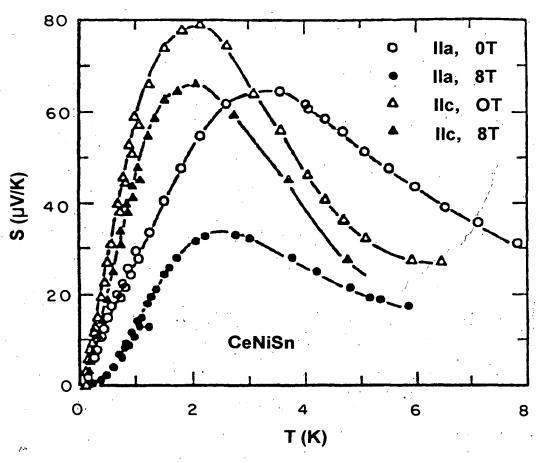


FIG. 4b

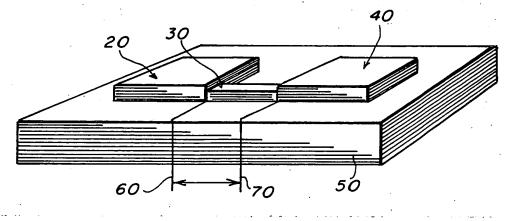


FIG. 5



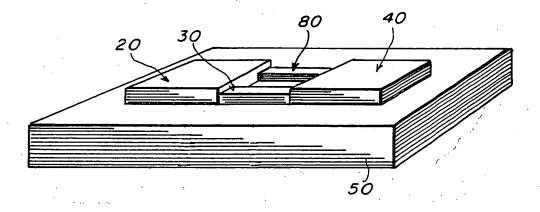


FIG. 6a

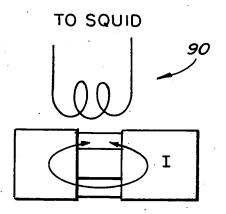
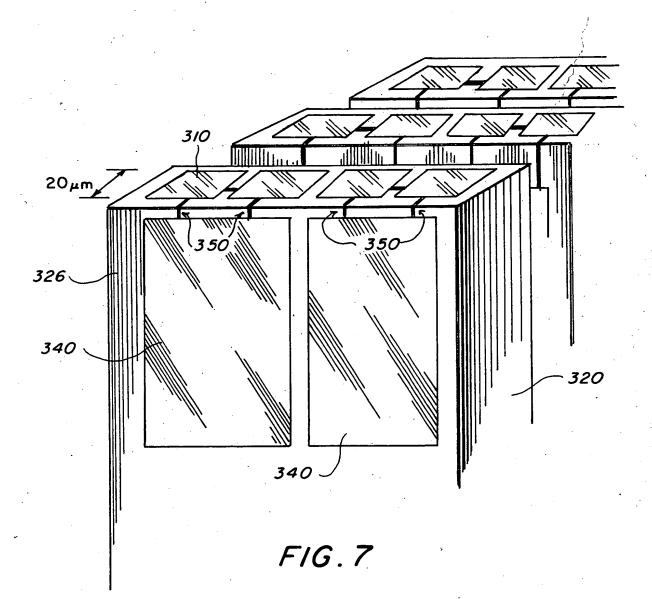


FIG. 6b







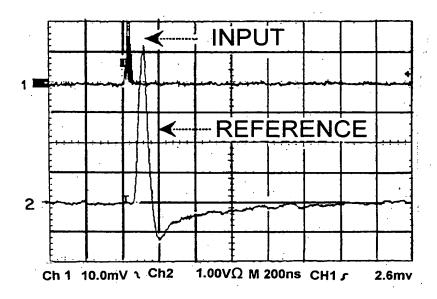


FIG. 8a

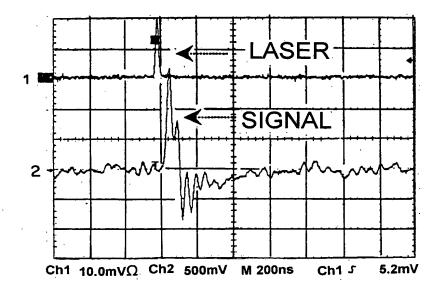
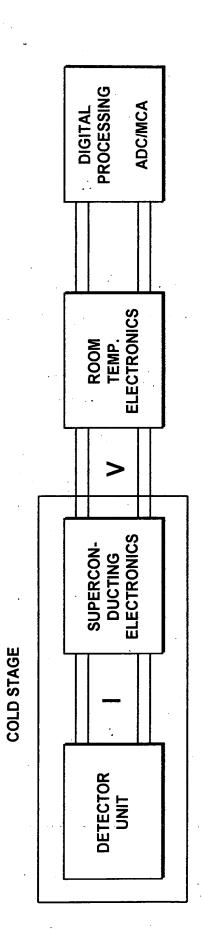


FIG. 8b





F/G. 9





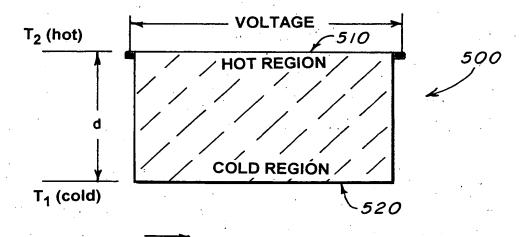
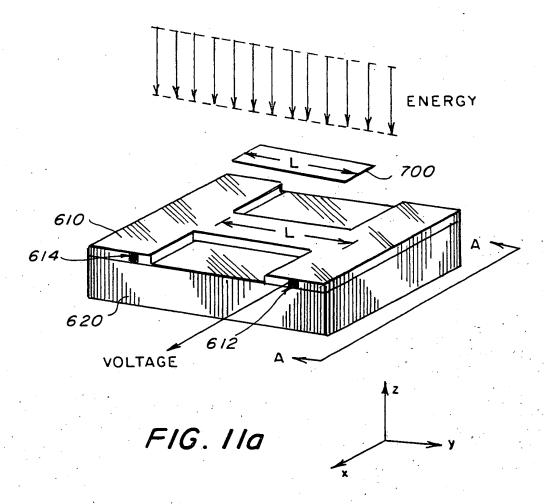


FIG. 10





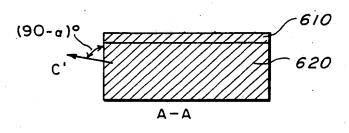


FIG. 11b



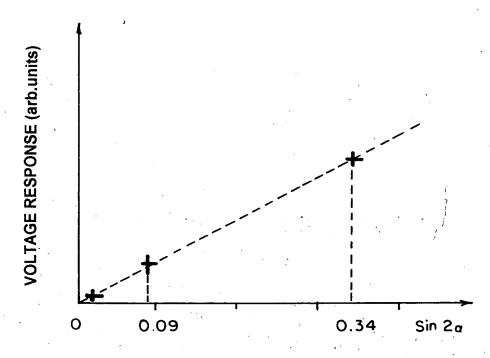


FIG. 12

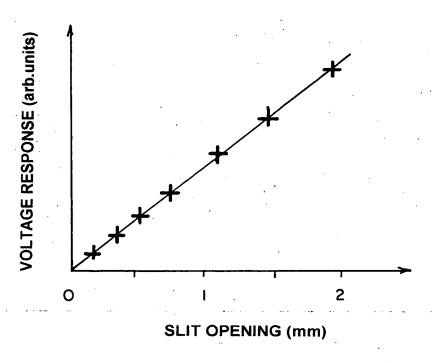


FIG. 13



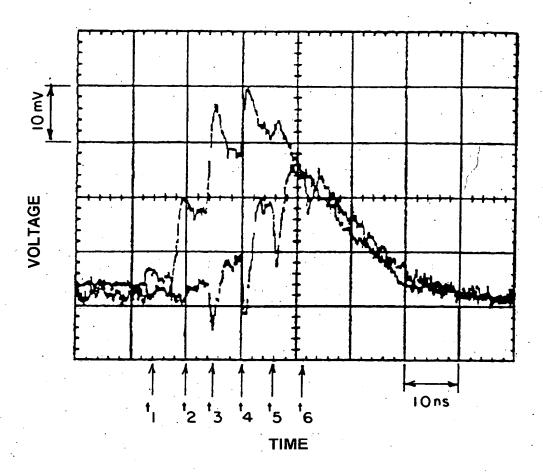
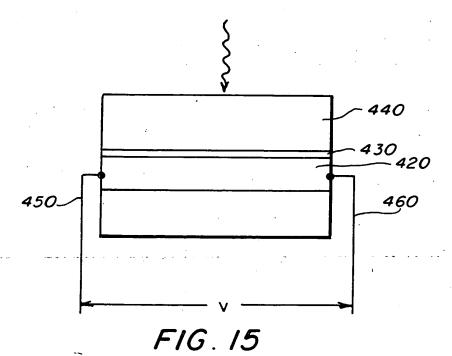


FIG. 14



/O ¹	PE	VC1	6
B.	ión J.	I DOUG	COEFICE
		- 70	,

Sheet 1 of 2

FORMPTO-1449

Atty. Docket No.

Serial No.

(modified)

79,849

Not yet assigned

INFORMATION DISCLOSURE CITATION

Applicant Armen M. Gulian et al

Filing Date

Group

March 22, 2001

U.S. PATENT DOCUMENTS

Exr Int*	Document No.	Date	Name	Class	Subcl	F. Date
	5,880,468	03/99	Irwin et al.	250	336.2	
·.						
						•
_						
4.				·		
					Ť	
				1		
						
						7. 1

Document No.	Date	Country	Class	Subcl	Transla
				•	

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

D. Van Vechten, K. Wood, G. Fritz, J. Horwitz, A. Gyulamiryan, A. Kuzanyan, V. Vartanyan, A. Gulian, "Imaging Detectors based on Anisotropic Thermoelasticity", Nuclear Instruments and Methods in Physics A 444 (2000) 42-45. Publication date April 11, 2000 D. Van Vechten, K. Wood, G. Fritz, A. Gyulamiryan, V. Nikogosyan, N. Giordano, T. Jacobs, A. Gulian, "Thermoelectric Single Photon Detectors: Isotropic Seebeck Sensors" IEEE 18th International Conference on Thermoelectrics (1999), pp 478-480. A.M. Gulian, D. Van Vechten, K.S. Wood, G.G. Fritz, J. Horwitz, M.S. Osofsky, J.M. Pond, S.B. Qadri, R.M. Stroud, J.B. Thrasher, V. Vartanyan, A.S. Kuzanyan, V.R. Nikogosyan, A.L. Gyulamiryan, "Imaging Detectors based on the Response of Anisotropic Layered Materials", IEEE Transactions on Applied Superconductivity, Vol 9, No. 2, June 1999, pp. 3194-3197. G.G. Fritz, K.S. Wood, D. Van Vechten, A.L. Gyulamiryan, A.S. Kuzanyan, N. Giordano, T.M. Jacobs, HD. Wu, J.S. Horwitz, A.M. Gulian, "Thermoelectric Single-Photong Detectors for X-ray/UV Radiation", X-Ray and Gamma Ray Instrumentation for Astronomy XI, K.A. Flanagan, O.H.W. Siegmund, eds., Proc. SPIE Vol 4140 (Aug 2000), 459-469 E.V. Osipov, A. Aulas, "Nature of Thermoelectric Anisotropy in Semiconductors at the lower temperatures", IEEE 16th International Conference on Thermoelectrics (1997) A.J. Miller, B. Cabrera, R.M. Clarke, E. Figueroa-Fleliciano, S. Nam, R.W. Romani, "Transition Edge Sensors as Single Photon Detectors", IEEE Transactions on Applied Superconductivity, Vol 9, No. 2, June 1999, pp. 4205-4208. K.D. Irwin, S.W. Nam, B. Cabrera, B. Chugg, G.S. Park, R.P. Welty, J.M. Martinis," A Self-Biasing Cryogenic Particle Detector Utilizing Electrothermal Feedback and a SQUID Readout", IEEE Transactions on Applied Superconductivity, Vol 5, No. 2, June	PEVC	
Augulanyan, V. Vartanyan, A. Gulian, "Imaging Detectors based on Anisotropic Thermoelasticity", Nuclear Instruments and Methods in Physics A 444 (2000) 42-45. Publication date April 11, 2000 D. Van Vechten, K. Wood, G. Fritz, A. Gyulamiryan, V. Nikogosyan, N. Giordano, T. Jacobs, A. Gulian, "Thermoelectric Single Photon Detectors: Isotropic Seebeck Sensors" IEEE 18th International Conference on Thermoelectrics (1999), pp 478-480. A.M. Gulian, D. Van Vechten, K.S. Wood, G.G. Fritz, J. Horwitz, M.S. Osofsky, J.M. Pond, S.B. Qadri, R.M. Stroud, J.B. Thrasher, V. Vartanyan, A.S. Kuzanyan, V.R. Nikogosyan, A.L. Gyulamiryan, "Imaging Detectors based on the Response of Anisotropic Layered Materials", IEEE Transactions on Applied Superconductivity, Vol 9, No. 2, June 1999, pp. 3194-3197. G.G. Fritz, K.S. Wood, D. Van Vechten, A.L. Gyulamiryan, A.S. Kuzanyan, N. Giordano, T.M. Jacobs, HD. Wu, J.S. Horwitz, A.M. Gulian, "Thermoelectric Single-Photong Detectors for X-ray/UV Radiation", X-Ray and Gamma Ray Instrumentation for Astronomy XI, K.A. Flanagan, O.H.W. Siegmund, eds., Proc. SPIE Vol 4140 (Aug 2000), 459-469. E.V. Osipov, A. Aulas, "Nature of Thermoelectric Anisotropy in Semiconductors at the lower temperatures", IEEE 16th International Conference on Thermoelectrics (1997) A.J. Miller, B. Cabrera, R.M. Clarke, E. Figueroa-Fleliciano, S. Nam, R.W. Romani, "Transition Edge Sensors as Single Photon Detectors", IEEE Transactions on Applied Superconductivity, Vol 9, No. 2, June 1999, pp. 4205-4208. K.D. Irwin, S.W. Nam, B. Cabrera, B. Chugg, G.S. Park, R.P. Welty, J.M. Martinis,"A Self-Biasing Cryogenic Particle Detector Utilizing Electrothermal Feedback and a SQUID Readout", IEEE	/O 1 2000 1	
N. Giordano, T. Jacobs, A. Gulian, "Thermoelectric Single Photon Detectors: Isotropic Seebeck Sensors" IEEE 18th International Conference on Thermoelectrics (1999), pp 478-480. A.M. Gulian, D. Van Vechten, K.S. Wood, G.G. Fritz, J. Horwitz, M.S. Osofsky, J.M. Pond, S.B. Qadri, R.M. Stroud, J.B. Thrasher, V. Vartanyan, A.S. Kuzanyan, V.R. Nikogosyan, A.L. Gyulamiryan, "Imaging Detectors based on the Response of Anisotropic Layered Materials", IEEE Transactions on Applied Superconductivity, Vol 9, No. 2, June 1999, pp. 3194-3197. G.G. Fritz, K.S. Wood, D. Van Vechten, A.L. Gyulamiryan, A.S. Kuzanyan, N. Giordano, T.M. Jacobs, HD. Wu, J.S. Horwitz, A.M. Gulian, "Thermoelectric Single-Photong Detectors for X-ray/UV Radiation", X-Ray and Gamma Ray Instrumentation for Astronomy XI, K.A. Flanagan, O.H.W. Siegmund, eds., Proc. SPIE Vol 4140 (Aug 2000), 459-469. E.V. Osipov, A. Aulas, "Nature of Thermoelectric Anisotropy in Semiconductors at the lower temperatures", IEEE 16th International Conference on Thermoelectrics (1997) A.J. Miller, B. Cabrera, R.M. Clarke, E. Figueroa-Fleliciano, S. Nam, R.W. Romani, "Transition Edge Sensors as Single Photon Detectors", IEEE Transactions on Applied Superconductivity, Vol 9, No. 2, June 1999, pp. 4205-4208. K.D. Irwin, S.W. Nam, B. Cabrera, B. Chugg, G.S. Park, R.F. Welty, J.M. Martinis, "A Self-Biasing Cryogenic Particle Detector Utilizing Electrothermal Feedback and a SQUID Readout", IEEE	TE TRADEMAN	Kuzanyan, V. Vartanyan, A. Gulian, "Imaging Detectors based on Anisotropic Thermoelasticity", Nuclear Instruments and Methods in
M.S. Osofsky, J.M. Pond, S.B. Qadri, R.M. Stroud, J.B. Thrasher, V. Vartanyan, A.S. Kuzanyan, V.R. Nikogosyan, A.L. Gyulamiryan, "Imaging Detectors based on the Response of Anisotropic Layered Materials", IEEE Transactions on Applied Superconductivity, Vol 9, No. 2, June 1999, pp. 3194-3197. G.G. Fritz, K.S. Wood, D. Van Vechten, A.L. Gyulamiryan, A.S. Kuzanyan, N. Giordano, T.M. Jacobs, HD. Wu, J.S. Horwitz, A.M. Gulian, "Thermoelectric Single-Photong Detectors for X-ray/UV Radiation", X-Ray and Gamma Ray Instrumentation for Astronomy XI, K.A. Flanagan, O.H.W. Siegmund, eds., Proc. SPIE Vol 4140 (Aug 2000), 459-469. E.V. Osipov, A. Aulas, "Nature of Thermoelectric Anisotropy in Semiconductors at the lower temperatures", IEEE 16th International Conference on Thermoelectrics (1997) A.J. Miller, B. Cabrera, R.M. Clarke, E. Figueroa-Fleliciano, S. Nam, R.W. Romani, "Transition Edge Sensors as Single Photon Detectors", IEEE Transactions on Applied Superconductivity, Vol 9, No. 2, June 1999, pp. 4205-4208. K.D. Irwin, S.W. Nam, B. Cabrera, B. Chugg, G.S. Park, R.P. Welty, J.M. Martinis, "A Self-Biasing Cryogenic Particle Detector Utilizing Electrothermal Feedback and a SQUID Readout", IEEE		N. Giordano, T. Jacobs, A. Gulian, "Thermoelectric Single Photon Detectors: Isotropic Seebeck Sensors" IEEE 18 th International
Kuzanyan, N. Giordano, T.M. Jacobs, HD. Wu, J.S. Horwitz, A.M. Gulian, "Thermoelectric Single-Photong Detectors for X-ray/UV Radiation", X-Ray and Gamma Ray Instrumentation for Astronomy XI, K.A. Flanagan, O.H.W. Siegmund, eds., Proc. SPIE Vol 4140 (Aug 2000), 459-469. E.V. Osipov, A. Aulas, "Nature of Thermoelectric Anisotropy in Semiconductors at the lower temperatures", IEEE 16 th International Conference on Thermoelectrics (1997) A.J. Miller, B. Cabrera, R.M. Clarke, E. Figueroa-Fleliciano, S. Nam, R.W. Romani, "Transition Edge Sensors as Single Photon Detectors", IEEE Transactions on Applied Superconductivity, Vol 9, No. 2, June 1999, pp. 4205-4208. K.D. Irwin, S.W. Nam, B. Cabrera, B. Chugg, G.S. Park, R.P. Welty, J.M. Martinis, "A Self-Biasing Cryogenic Particle Detector Utilizing Electrothermal Feedback and a SQUID Readout", IEEE		M.S. Osofsky, J.M. Pond, S.B. Qadri, R.M. Stroud, J.B. Thrasher, V. Vartanyan, A.S. Kuzanyan, V.R. Nikogosyan, A.L. Gyulamiryan, "Imaging Detectors based on the Response of Anisotropic Layered Materials", IEEE Transactions on Applied Superconductivity, Vol 9,
Semiconductors at the lower temperatures", IEEE 16th International Conference on Thermoelectrics (1997) A.J. Miller, B. Cabrera, R.M. Clarke, E. Figueroa-Fleliciano, S. Nam, R.W. Romani, "Transition Edge Sensors as Single Photon Detectors", IEEE Transactions on Applied Superconductivity, Vol 9, No. 2, June 1999, pp. 4205-4208. K.D. Irwin, S.W. Nam, B. Cabrera, B. Chugg, G.S. Park, R.P. Welty, J.M. Martinis, "A Self-Biasing Cryogenic Particle Detector Utilizing Electrothermal Feedback and a SQUID Readout", IEEE		Kuzanyan, N. Giordano, T.M. Jacobs, HD. Wu, J.S. Horwitz, A.M. Gulian, "Thermoelectric Single-Photong Detectors for X-ray/UV Radiation", X-Ray and Gamma Ray Instrumentation for Astronomy XI, K.A. Flanagan, O.H.W. Siegmund, eds., Proc. SPIE Vol 4140 (Aug
Nam, R.W. Romani, "Transition Edge Sensors as Single Photon Detectors", IEEE Transactions on Applied Superconductivity, Vol 9, No. 2, June 1999, pp. 4205-4208. K.D. Irwin, S.W. Nam, B. Cabrera, B. Chugg, G.S. Park, R.P. Welty, J.M. Martinis, "A Self-Biasing Cryogenic Particle Detector Utilizing Electrothermal Feedback and a SQUID Readout", IEEE		Semiconductors at the lower temperatures", IEEE 16th International
J.M. Martinis, "A Self-Biasing Cryogenic Particle Detector Utilizing Electrothermal Feedback and a SQUID Readout", IEEE		Nam, R.W. Romani, "Transition Edge Sensors as Single Photon Detectors", IEEE Transactions on Applied Superconductivity, Vol 9,
1995, pp. 2690-2693.		J.M. Martinis, "A Self-Biasing Cryogenic Particle Detector Utilizing Electrothermal Feedback and a SQUID Readout", IEEE Transactions on Applied Superconductivity, Vol 5, No. 2, June
Examiner Date considered	The state of the s	Data samaidared
Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next community cation to applicant.	*Examine	:: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if

2

Sheet 1 of 2 For PTO-1449 Serial No. Atty. Docket No. (modified) 79,849 Not yet assigned Applicant Armen M. Gulian et al INFORMATION DISCLOSURE CITATION Group Filing Date March 22, 2001 U.S. PATENT DOCUMENTS Subcl Class Name F. Date Document No. Date Exr Int* 250 336.2 03/99 Irwin et al. 5,880,468

FOREIGN PATENT DOCUMENTS

Document No.	Date	Country	Class	Subcl	Transl

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

_	1 MIN STEEL	
&	THADEMA	D. Van Vechten, K. Wood, G. Fritz, J. Horwitz, A. Gyulamiryan, A. Kuzanyan, V. Vartanyan, A. Gulian, "Imaging Detectors based on Anisotropic Thermoelasticity", Nuclear Instruments and Methods in Physics A 444 (2000) 42-45. Publication date April 11, 2000
		D. Van Vechten, K. Wood, G. Fritz, A. Gyulamiryan, V. Nikogosyan, N. Giordano, T. Jacobs, A. Gulian, "Thermoelectric Single Photon Detectors: Isotropic Seebeck Sensors" IEEE 18th International Conference on Thermoelectrics (1999), pp 478-480.
		A.M. Gulian, D. Van Vechten, K.S. Wood, G.G. Fritz, J. Horwitz, M.S. Osofsky, J.M. Pond, S.B. Qadri, R.M. Stroud, J.B. Thrasher, V Vartanyan, A.S. Kuzanyan, V.R. Nikogosyan, A.L. Gyulamiryan, "Imaging Detectors based on the Response of Anisotropic Layered Materials", IEEE Transactions on Applied Superconductivity, Vol 9 No. 2, June 1999, pp. 3194-3197.
	•	G.G. Fritz, K.S. Wood, D. Van Vechten, A.L. Gyulamiryan, A.S. Kuzanyan, N. Giordano, T.M. Jacobs, HD. Wu, J.S. Horwitz, A.M. Gulian, "Thermoelectric Single-Photong Detectors for X-ray/U Radiation", X-Ray and Gamma Ray Instrumentation for Astronomy XI, K.A. Flanagan, O.H.W. Siegmund, eds., Proc. SPIE Vol 4140 (Aug 2000), 459-469.
		E.V. Osipov, A. Aulas, "Nature of Thermoelectric Anisotropy in Semiconductors at the lower temperatures", IEEE 16th International Conference on Thermoelectrics (1997)
		A.J. Miller, B. Cabrera, R.M. Clarke, E. Figueroa-Fleliciano, S. Nam, R.W. Romani, "Transition Edge Sensors as Single Photon Detectors", IEEE Transactions on Applied Superconductivity, Vol 9 No. 2, June 1999, pp. 4205-4208.
		K.D. Irwin, S.W. Nam, B. Cabrera, B. Chugg, G.S. Park, R.P. Welty J.M. Martinis, "A Self-Biasing Cryogenic Particle Detector Utilizing Electrothermal Feedback and a SQUID Readout", IEEE Transactions on Applied Superconductivity, Vol 5, No. 2, June 1995, pp. 2690-2693.

Date considered

Examiner